

Estimating Bacterial Cytosol Volume based on OD, Dry Weight or Wet Weight

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Sean Weise, Documented in Lab Notebook #00144 page 145

Conversions

DW = Dry Weight

WW = Wet Weight

$$0.35 \text{ g DW L}^{-1} \text{ broth OD}^{-1}$$

$$4 \text{ g WW g}^{-1}\text{DW}$$

$$0.0004 \text{ L}_{\text{Cytosol}} \text{ g}^{-1}\text{WW}$$

Example: CIBT strain #3 three hours after induction had an average OD of 1.89

$$1.89 \text{ OD} * 0.35 \text{ g DW L}^{-1} \text{ broth OD}^{-1} = 0.6615 \text{ g DW L}^{-1} \text{ broth}$$

$$0.6615 \text{ g DW L}^{-1} \text{ broth} * 4 \text{ g WW g}^{-1}\text{DW} = 2.646 \text{ g WW L}^{-1} \text{ broth}$$

$$2.646 \text{ g WW L}^{-1} \text{ broth} * 0.0004 \text{ L}_{\text{Cytosol}} \text{ g}^{-1}\text{WW} = 1.1 \text{ mL}_{\text{cytosol}} \text{ L}^{-1} \text{ broth}$$